

## ABSTRACT

To provide a radioactive gas measurement apparatus that is simply constructed and can efficiently measure Xe-133 in a radioactive gas on-line under the condition that the radioactive gas is mixed with interference N-13, an apparatus is provided for measuring a radiation emitted from Xe-133, including an anticoincidence counter circuit 13 that conducts counting if it receives an output of a main detector 1 when it does not receive outputs of scintillation detectors 2 and 9, and a gate circuit 14, a plate-shaped semiconductor detector is used as the main detector 1, and a material not emitting a characteristic X ray in the range from 70 to 90 keV is used for a shielding structure. In particular, the thickness of the semiconductor detector 1 is set to fall within a range from 2 mm to 7 mm, thereby improving the analysis precision.